

A Network-Aware Access Control System for Providing Good Enough Security to Low Value Information

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ABSTRACT

Information in digital forms is shared over the Internet between users belonging to different organisations. Such information differs in value based on the nature of the application. Eg. patient medical reports have high value while a book shared for translation from one language to another, or an insurance application form have less value.

In scenarios such as rural business process outsourcing, users are geographically distributed throughout the country in cities, towns and villages [1]. The network may be intermittent due to physical link failures or administrative policies which disallow external access during certain periods of time. Many users employ mobile data networks resulting in intermittent connections.

With traditional server-based access control, users in such scenarios would not be able to access information when the network is disconnected. We propose an access control system that allows continuous access based on the principle of *good-enough security*. This principle states that “everything should be made as secure as necessary, but not securer” [2]. Our approach to achieve good-enough security is to decompose objects into smaller objects (doblets) such that the value of each doblet is low, each user is assigned only some doblets, and permissions are bound to the doblet before sharing. Authorisation is done using object-bound permissions during network disconnection. Our access control model extends the role-based access control (RBAC) model [3] to support simplified, dynamic, network-aware permissions along with the ease of administration.

BODY

Network-aware access control systems can provide good-enough security for sharing information with low value over intermittent network.

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Volume 4 of Tiny Transactions on Computer Science

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